

MICROVASCULAR BLOOD VOLUME MAGNETIC RESONANCE IMAGING

Abstract

A magnetic resonance imaging system includes a magnetic resonance imaging scanner (10) that performs an inversion recovery magnetic resonance excitation sequence (70) having a blood-nulling inversion time (60) determined based on a blood T1 value appropriate for a selected magnetic field and blood hematocrit, whereby magnetic resonance of blood is substantially nulled. The inversion recovery excitation sequence (70) includes an inversion radio frequency pulse (74) applied with a small or zero slice-selective magnetic field gradient pulse to avoid inflow effects, and an excitation radio frequency pulse (80). The inversion pulse (74) and excitation pulse (80) are separated by the inversion time (60). The magnetic resonance imaging scanner (10) subsequently performs a readout magnetic resonance sequence (72) or spectroscopy sequence to acquire a magnetic resonance signal from tissue other than the nulled blood. A reconstruction processor (44) generates a reconstructed image from the acquired magnetic resonance signal.